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# U. S. DEPARTMENT OF AGRICULTURE

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## CARE OF FOOD IN THE HOME



**P**ROPER CARE OF FOOD in the home is necessary to healthful, economical living. It is wasteful to allow food to lose its attractive flavor or appearance; moreover, spoiled or infected food may be actually dangerous to health or even to life. This bulletin gives information as to forms and causes of food spoilage and suggests methods for keeping foods in good condition.

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# CARE OF FOOD IN THE HOME.

*Prepared by the Bureau of Home Economics.*

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## CAUSES OF SPOILAGE.

**F**OOD generally shows when it is spoiled by an unpleasant look, taste, or smell. It may, however, be contaminated with organisms that make it unsafe for use, even though it still appears good. The causes of spoilage are many and varied, and foods differ greatly in the kind of care needed.

Foods may be spoiled by bacteria, yeasts, molds; by changes produced by heat and cold, light, and loss or absorption of moisture; by insects and other household pests; and by parasites of food animals. Dirt and careless handling increase the chances of spoilage at every stage from the time food is produced until finally used. Right methods of care in the home can prevent or at least check much waste from these causes. The waste of food through poor choice, preparation, and serving is due to very different reasons and is not discussed in this bulletin.

## BACTERIA, YEASTS, AND MOLDS.

Bacteria, yeasts, and molds—three types of microorganisms—are the most important and insidious of all causes of food spoilage. They are almost everywhere, yet their presence is often unsuspected until they have caused a food to change color, ferment, or decay. Microorganisms are distributed in all sorts of ways. Some spread themselves by rapid growth; others are carried by the air, by water, by insects and animals, and on the hands and clothing of people.

The growth of bacteria, yeasts, and molds, like that of any other plants, is influenced by temperature, moisture, and light. One of the chief problems in the care of food is to make these conditions so unfavorable that microorganisms can not live or at least are unable to develop, without at the same time making undesirable changes in the food itself. Pasteurization of milk does this by raising the temperature for a certain time to a point that destroys undesirable bacteria, but **does not** cook the milk. Most microorganisms are sensitive to cold **also, at least** to the extent that growth is more or less checked by a temperature of 40° to 50° F. Drying is another way to prevent the growth of microorganisms in foods. Dried fruits and vegetables,

for instance, may keep for months in a cool, dry place, but as soon as water is added to them they will spoil as quickly as fresh kinds. Direct sunlight destroys many microorganisms, but the dim light of the cellar is just right for some molds.

Bacteria of various sorts must be dealt with in the care of food. Lactic-acid bacteria, for example, cause milk to sour but do not necessarily make it unwholesome, and are an aid in making butter and cheese. Other kinds, however, make foods putrefy and decay, and still others develop dangerous poisons. In addition, foods are sometimes contaminated in various ways with the bacteria of such diseases as typhoid fever and paratyphoid, tuberculosis, diphtheria, and dysentery. For instance, the bacteria of typhoid and paratyphoid are transmitted to food as it is handled by persons who carry these organisms in their bodies, though they are apparently healthy. Two varieties of the poison-producing bacteria require special mention.

*Bacillus enteritidis* is responsible for many of the cases of so-called meat poisoning and is particularly dangerous because it does not give the food a spoiled taste or smell. It occurs in domestic animals, hence the need for great cleanliness in slaughterhouses and in markets. Even home-dressed chickens may become infected through carelessness in drawing or by flies conveying the infection. Since it is believed that the poison developed by this bacillus is not affected to any extent by heat, cooking infected meat does not render it safe.

*Bacillus botulinus* develops a powerful poison in the food that it infects, but this poison is destroyed by thorough boiling. The organism does not grow well at temperatures below 50° F.; therefore proper refrigeration protects food from it. It has been found in sausage, preserved meat, and canned goods. Usually, but not always, the contaminated food shows plain signs of spoilage. Suspected food should never be even tasted until after it has been heated to boiling, and some authorities advise that the boiling be continued from 30 to 45 minutes. Fortunately, cases of poisoning due to *botulinus* are rare, considering the great quantity of canned foods used.

Yeasts generally show their presence in foods containing sugar by fermenting them, as often happens in stewed or canned fruits or fruit juices. Some of these wild yeasts have been domesticated, as it were, and put to work in leavening bread and making kefir, kumiss, and other fermented-milk beverages. Bacteria sometimes interfere with the action of yeast in bread making and develop sour or other bad flavors or make the bread slimy or unnatural in color.

Molds spread through food as delicate velvety or powdery growths of various colors, feeding on some of the substances and causing changes in texture and flavor. As in the case of bacteria and yeasts, some molds are cultivated and introduced into food to produce special effects. The flavor of Roquefort and Camembert cheese, for example, is due to the development of certain molds. Since the spores of molds are easily blown about in the air and are also fairly resistant to heat, the housekeeper has to be constantly on the watch, especially in damp, warm weather, against molds on or even near foods.

**CHANGES PRODUCED BY HEAT AND COLD, LIGHT, AND LOSS OR ABSORPTION OF MOISTURE.**

Heat and cold, light, and loss or absorption of moisture have other effects on food spoilage besides those connected with growth of bacteria, yeasts, and molds.

Many fresh fruits ripen so rapidly, even at ordinary room temperature, that they soon pass their prime, as everybody knows from the mealy apples often found in the dish on the sideboard. Nuts and other fat foods become rancid more quickly if stored in a warm rather than a cool place. On the other hand, temperature as low as freezing ruins both texture and flavor of some foods. Frozen potatoes, for example, are watery and have an unpleasant sweetish flavor.

Light also hastens the ripening of fresh fruits and vegetables. Various canned and dried products seem to keep their attractive color longer in light-proof containers, and the quality of table oils and fats is affected by light as well as heat.

Too great circulation of air over foods may injure them. For instance, lettuce and other succulent vegetables become wilted by evaporation, while crackers and cookies lose their crispness by absorbing moisture from the air. In other words, moist foods often need to be protected from drying out and dry foods from becoming moist. The wrappers and containers in which many commercial food products are marketed prevent such changes very effectively, and suggest good practices to the housekeeper.

**INSECTS AND OTHER HOUSEHOLD PESTS.**

Insects, rats and mice, and other household pests not only destroy and pollute foods in obvious ways, but they may also infect them with microorganisms dangerous to health. The rat has been called the most destructive animal in the world, partly because it spreads bubonic plague, and the common house fly fully deserves the epithet "typhoid-fever" fly, and is also a known carrier of the bacteria of cholera, dysentery, and tuberculosis. Even the so-called "fly specks" often deposited on food and dishes may be infected with disease germs and the eggs of dangerous parasites.

Methods of exterminating or controlling rats and mice, flies, ants, and other household insects that damage foods are given in other bulletins<sup>2</sup> of this department. Food more than anything else draws these pests to a house, and their visits are at least discouraged by keeping supplies covered or in closed containers and by disposing of garbage promptly.

Sometimes, in spite of all the housekeeper's precautions, weevils or worms develop quickly in apparently sound cereal products, dried vegetables and fruits, or nuts. In reality, these pests come from minute eggs deposited by insects in or upon grains or other seeds, or in the flour or other material itself, or in the crevices of the box or container used in storage. Such infested food materials should be destroyed promptly and the containers thoroughly washed and scalded before a new supply is stored. To anyone knowing the

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<sup>2</sup> U. S. Dept. Agr., *Farmers' Buls.* 1302, *How to Get Rid of Rats*; 1408, *The House Fly and How to Suppress It*; 740, *House Ants*; 658, *Cockroaches*.

scientific facts in each case, the presence of a chance meal worm in the cereal is a cause for far less concern than are flies lighting on food. The worm has spent its life in the package of cereal, feasting on it alone, while the fly is covered with filth picked up in its promiscuous visits.

#### PARASITES OF FOOD ANIMALS.

Meat sometimes harbors animal parasites, such as the tapeworm and trichina. The microscopic larvæ of these parasites are embedded in the lean meat, awaiting opportunity to complete their development in the human body or some other favorable environment. Rigid inspection by Federal or other official inspectors at packing plants has done much to exclude infested carcasses from the market, but the danger is still to be reckoned with, especially in uninspected, home-dressed meat. In any case, thorough cooking of the meat is the real safeguard. Even the popular rare roast beef should be cooked until the color has changed from purplish to a bright red. The vitality of these parasites is not destroyed by preservatives, such as salt and smoke, and there is great risk in eating uncooked sausages and similar meat preparations, even though they have been smoked.

#### STORAGE.

Successful care of food in the home depends very largely on whether there is a good storeroom, suitable containers, and an ice box or some other reliable means of keeping foods cool.

#### STOREROOMS.

The pantry, cellar, or other room where food is kept should be clean, cool, airy, dry, screened against flies and other vermin, and free from musty or other disagreeable odors. Suggestions about the convenient arrangement of pantries and other storerooms with relation to the kitchen are given in another bulletin of this series.<sup>3</sup>

If the cellar must be used as the chief storage place for food, a dumb-waiter on which supplies can be lowered and raised soon pays for itself in time and strength saved. The liberal use of whitewash and unslaked lime in the cellar helps to keep down microorganisms and undesirable odors. Since the bottom of the cellar is the coolest part, foods often keep best if set on the floor, provided it is clean and dry. If the floor is damp and earthy, a layer of clean bricks may be arranged under the food. If there is a furnace in the main part of the cellar, it is generally too warm and dry for the winter storage of fruits and vegetables, but a storeroom can oftentimes be partitioned off and so ventilated that the temperature is kept constantly cool. Directions for building such a storeroom and for making outdoor cellars and pits for storing various kinds of vegetables are given in another bulletin.<sup>4</sup> A cool room in a dry cellar is also a good place to store canned foods.

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<sup>3</sup> U. S. Dept. Agr., Farmers' Bul. 607, *The Farm Kitchen as a Workshop.*

<sup>4</sup> U. S. Dept. Agr., Farmers' Bul. 879, *Home Storage of Vegetables.*

In a cool, dry climate food may be successfully kept in an air shaft extending from the cellar or the lower floor of the house to the roof and equipped with a door opening into the kitchen or pantry and wire or perforated shelves of convenient height. Both ends of this shaft should be screened.

#### CONTAINERS.

The choice of proper containers for foods prevents much deterioration and waste. As a general thing each food is best kept in its own closed container. Dry foods may be stored in glass, earthenware, metal, wooden, or specially treated cardboard or paper containers, depending on how carefully they must be protected from air, light, and vermin. For moist and watery foods the choice of containers is more limited, for not only must leakage be prevented, but the effect of acids on some metals must be considered. A container that has no cracks or seams in which dirt or microorganisms may lodge and that can be thoroughly washed and aired before fresh supplies are stored in it is in many cases preferable. Labeling food containers plainly saves time when preparing meals and helps to prevent the wasteful and sometimes harmful accidents that happen when one material is mistaken for another.

The food containers used in the refrigerator should be convenient in size, washable, as light in weight as possible so that undue quantities of ice will not be melted in cooling them to the temperature of the refrigerator, and fitted with covers to prevent the food from drying out and the escape or absorption of odors. In fact, all foods and food materials that are to be used without washing, such as butter, cheese, or sugar, should be wrapped or kept in covered receptacles, whether stored in the refrigerator or in the pantry, cellar, or any other place.

#### SPECIAL MEANS OF KEEPING FOODS COOL.

Under ordinary household conditions and where ice is obtainable, the refrigerator is generally the best means for keeping foods cool. When ice is placed in the refrigerator, it begins to melt by absorbing heat from the surrounding air. This air, becoming colder and heavier, settles to the lower part of the refrigerator, while the warmer air rises, gives up heat by coming in contact with the ice, and in turn becomes chilled and sinks to the bottom. These currents of air come in contact with the food, absorb heat from it, and so cool it.

On the continuous and rapid circulation of cooled air in a refrigerator, then, in large measure depends its value as a storage place for foods. All spaces for the passage of air from the ice chamber should be kept open. It is a mistake to wrap the ice in paper or cloth. Such a covering retards the circulation of air and insulates the ice from the rest of the refrigerator.

Each article placed in the refrigerator contains a definite amount of heat that will melt a definite amount of ice. Hot foods should, whenever possible, be cooled to room temperature before being put into the refrigerator. Also, there is no excuse for using ice to chill such things as the thick paper wrappings of parcels from the market, the tops of carrots, or the outside leaves of lettuce, which will all be



discarded later. Furthermore, ice is melted to no purpose when vegetables and fruits that are to be prepared almost immediately are placed in the refrigerator only to be taken out again after a few minutes.

The coldest place in the refrigerator should be reserved for the most perishable foods, such as milk and meat. This is usually just below the ice chamber, but it can easily be located with a reliable thermometer. Such a test may also show that no part of the refrigerator is as cold as was supposed and therefore that too great dependence should not be placed on it as a storage place for highly perishable foods. In order to check the growth of microorganisms effectively, the temperature of the refrigerator should be at least 50° F. and preferably less. Tests conducted by the United States Bureau of Standards<sup>5</sup> show that in order to maintain such a temperature the household refrigerator of medium size should have on the top and sides 1½ inches of insulating material and 3 inches on the bottom. Large refrigerators need thicker insulation than this.

The main object in using a refrigerator is to save food, not ice, and real economy consists in having well-insulated walls, in keeping the ice chamber well stocked, in opening the doors only when necessary and for as brief periods as possible, and in putting nothing into the refrigerator that does not, so to speak, pay its way.

The refrigerator should be kept scrupulously clean. Only clean food, clean ice, and clean containers should be put into it, and any food spilled should be wiped up immediately with a clean, damp cloth. The ice chamber, drainpipe, and trap must be kept free from sediment and slime, and consequently should be washed occasionally with hot water and washing soda and rinsed with cold water. Efforts to "sterilize" a refrigerator by scalding are futile under most household conditions, for the heat can not be applied for a long enough period to effect sterilization, and greater safety results from the daily practice of genuine neatness.

If no ice is available, good results can be obtained in some climates with an iceless refrigerator, which is described in another bulletin of this series,<sup>6</sup> or one of the earthenware devices in which air is cooled by the rapid evaporation of water. Foods may also be kept cool as well as hot in heat-tight containers, such as fireless cookers and vacuum-jacketed bottles. These devices, of course, will not make the food cooler than it was when placed in them.

On some farms the cold water pumped from deep wells for the livestock may first be used to cool foods by running it through a suitable storage box, or a house or box may be built over a spring or a brook. Foods in tight containers may also be lowered into the cool air of the cistern or well, but if the water is used for drinking great care must be taken not to let foods fall into it. Special wells or caves for the cool storage of foods are sometimes constructed.

### CARE OF DIFFERENT KINDS OF FOODS.

A study of how best to care for food in the home must include some consideration of the processes and vicissitudes which the food has undergone before it reaches the housekeeper. Is it fresh from

<sup>5</sup> S. Dept. Commerce, Bur. Standards Circ. 55, Measurements for the Household.  
<sup>6</sup> . . . Dept. Agr., Farmers' Bul. 927, Farm Home Conveniences.

the garden or farm, or has it been shipped in from a distance or been held in cold storage? What foods must receive special attention, or be utilized at once because they have been kept under special conditions which can not be duplicated in the home? In case a food material is not in prime condition, can it be restored to comparative freshness and attractiveness, or do the imperfections render it dangerous to health? The food materials with which the housekeeper must deal are the kinds rich in protein, such as milk and other dairy products, fresh meat, fish, poultry, eggs, and left-over cooked foods; fresh vegetables and fruits; cooking fats and table oils; bread, cake, and other baked goods; dry foodstuffs, such as flour, sugar, dried fruits and vegetables, and dried and smoked meats; and canned goods. Some of these foods are less perishable than others because they contain less moisture or are less sensitive to heat and light or because their surfaces act as a more or less protective covering. Simple directions for caring for the common kinds of food materials are given here.

#### MILK AND OTHER DAIRY PRODUCTS.

Milk and cream are among the most perishable and easily contaminated of all foods, and since they are often served uncooked, they may be a menace to health unless produced and handled in a cleanly way. Milk produced for home use on the farm deserves as careful attention as it would receive in a first-class dairy. Cleanliness in milking, the use of sterilized utensils, prompt straining and cooling of the milk, and keeping it at a temperature of 50° F. or less if possible, in a place free from odors, dust, and flies will bring large returns in quality and flavor and consequently in family well-being. The indifference or aversion of farm children to milk has been traced in many cases to the fact that milk smells and tastes of the cow, the stable, and of poorly washed utensils. The production of clean milk is discussed in another bulletin of this series.<sup>7</sup>

Milk bought from a dairy is best kept until used in the bottles in which it is delivered. They should be brought indoors as soon as possible after delivery, washed, and placed in the refrigerator or other storage place where the temperature is 50° F. or preferably less. In washing, special attention should be given to the mouth of the bottle and the cap. Even a temporary rise in the temperature of milk aids the development of bacteria. Directions for the home pasteurization of milk, as well as more detailed suggestions for care are given in another bulletin.<sup>8</sup>

Butter should be kept cold and in a covered container that excludes light and prevents the absorption of foreign flavors. Creamery print butter keeps well in the cartons in which it is marketed. Butter purchased in bulk should be rinsed off with cold water to remove any drops of buttermilk which may have come to the surface and may then be wrapped in several thicknesses of cheesecloth wet in weak brine.

Cheese of any kind is especially susceptible to mold, but it can be protected to some degree by keeping it cool and well wrapped in

<sup>7</sup> U. S. Dept. Agr., Farmers' Bul. 602, Production of Clean Milk.

<sup>8</sup> U. S. Dept. Agr., Farmers' Bul. 1359, Milk and Its Uses in the Home.

waxed paper. Soft cheeses should be left in their original containers until used. The odor of cheese is so penetrating that it should be kept in a tight container if stored near butter, eggs, or other foods likely to be flavored by it.

#### FRESH MEAT, FISH, AND POULTRY.

The moist, cut surfaces of dressed meats, poultry, and fish offer particularly favorable conditions for the growth of microorganisms that cause putrefaction; therefore every precaution should be taken to keep such foods clean, cold, and dry.

Cuts of meat from the market should be unwrapped as soon as delivered, any visible dirt wiped or scraped off, and the meat then placed in a clean, dry, covered dish in the refrigerator or cold store-room. Washing draws the juices from meats and hastens spoilage and should never be done until just before cooking. The curing of meats on the farm is discussed in other bulletins.<sup>9</sup> The edible organs, such as liver, sweetbreads, and brains, spoil more easily than the ordinary cuts of meat and should be handled with particular care and used promptly.

Fish loses its fresh flavor and spoils even more quickly than most meats. Since the flavor is likely to be absorbed by other foods, it should be put into the refrigerator only in a tightly covered container. Shellfish, with the exception of the kinds held alive until used, should be kept like other sea food as nearly ice cold as possible.

For marketing, undrawn poultry generally keeps better than that from which the entrails are removed, but under home conditions poultry should generally be drawn at once after singeing and thoroughly washing to remove dirt, oil, and flakes of scarf-skin. In drawing poultry, the contents of the intestines should not be allowed to come in contact with the meat, lest it become infected with dangerous microorganisms. The bird or the pieces into which it has been cut should then be rinsed again, drained well or wiped with a clean cloth, and kept cold until cooked. Birds bought drawn should also be washed inside and out before cooking.

#### EGGS.

As soon as eggs are brought from the poultry yard or the market, they should be sorted, and any cracked or soiled ones removed for immediate use. The keeping quality of eggs is seriously affected by rough handling, changes in temperature, dampness, dirt on the shells, unclean surroundings, and fertility. Fertile eggs tend to spoil more quickly than those that are infertile, for even room temperature (70° F.) aids the development of the embryo in a fertile egg. Eggs, therefore, are best kept in a covered container in a dry, clean place where the temperature is not above 60° F. All eggs should be washed, but not until just before using, because water removes the protective film on the shell that hinders evaporation, the entrance of bacteria, and the absorption of odors. Preserving eggs for home use in water glass (potassium or sodium silicate) and lime solution is

<sup>9</sup> U. S. Dept. Agr., *Farmers' Buls.* 1172, *Farm Slaughtering and Use of Lamb and Mutton*; 1186, *Pork on the Farm: Killing, Curing, and Canning.*

described in another bulletin.<sup>10</sup> Fresh, clean, unwashed, infertile eggs should be used for this purpose, and they should not be left in the preservative for more than a year. Eggs preserved in water glass or other solution should be rinsed with water and wiped dry before being opened, but eggs should not be washed before being put into the preservative. If such eggs are cooked in the shell, a small hole should be pricked in the large end before putting them into the hot water; otherwise the shell is likely to crack, for the pores have been sealed by the preserving solution.

#### LEFT-OVER COOKED FOODS.

Moist cooked foods, especially those made with protein-rich materials, such as milk, eggs, meat, or fish, are excellent breeding places for harmful microorganisms, including those that cause serious poisoning without making the food smell or taste spoiled. Left overs of meat pies, dishes made with cream sauce, gravies, custards, boiled or cream salad dressing must be carefully handled and should be used promptly. Boiled rice, hominy, and other cereals also spoil quickly. In general, left-over foods should be transferred promptly from the dishes in which they were served to separate, clean, dry, covered dishes, chilled as quickly as possible, and kept in the cold storeroom or the refrigerator. In hot weather especially, left overs of perishable foods should, when possible, be boiled or thoroughly heated before being served again. "Warming up" such foods is not enough; it may even increase the danger by raising the temperature to a point favorable to the growth of microorganisms but not high enough to destroy them. Such left overs served as "cold victuals" are not only unappetizing but may be unsafe as well.

#### FRESH FRUITS AND VEGETABLES.

Most fresh fruits and vegetables need to be kept clean, well ventilated, and, if possible, at a temperature between 60° and 40° F. These conditions help to prevent spoilage by wilting and by molds, bacteria, and yeasts, and to check ripening changes. Fresh fruits and vegetables are living materials, even after they are picked from the plant or the soil where they grew, and certain substances, called enzymes, continue to work in the cells and bring about ripening. From the standpoint of edible quality, there is a certain stage of ripeness when every fruit and vegetable is considered prime, and the care it receives in the home oftentimes is very important in maintaining this period or in handling foods that have passed it.

Fruits and vegetables stored in boxes, barrels, and bins should be sorted frequently to remove decayed ones, which may infect others. The commercial practice of wrapping oranges, apples, and other fruits, and sometimes choice vegetables, in separate papers is in some cases worth following in the home. The wrappers prevent the fruits from bruising each other and also keep the skins from touching and so offering a favorable place for the growth of molds. Soft fruits, such as berries, peaches, plums, and pears should, if possible, be spread out on clean wrapping paper or in shallow pans or platters

<sup>10</sup> U. S. Dept. Agr., Farmers' Bul. 1331, Backyard Poultry Keeping.

rather than kept in deep receptacles. The winter storage of vegetables in quantity on the farm is discussed in another bulletin.<sup>11</sup>

All vegetables and fruits, especially those to be eaten raw, should be thoroughly washed before use as a protection to health as well as for the sake of general cleanliness. The loss of flavor and texture is very slight even in such thin-skinned fruits as strawberries, provided they are not allowed to stand in the water and are drained thoroughly, and lettuce and other salad plants are made crisper and more attractive. Lifting them from the water rather than draining it off is an effective way of freeing these foods from grit and dirt, or washing them in running water is perhaps best of all.

#### COOKING FATS AND TABLE OILS.

All fats should be kept cool, covered, and in light-proof containers, for heat, light, and air tend to make fats rancid.

Pure fats, such as well-rendered lard, lard compounds, and the vegetable fats and oils, can be kept for long periods, provided these simple precautions are taken. Mold on the surface of these fats indicates the presence of moisture. The mold should be removed carefully to avoid scattering the spores and the fat heated, if possible, in order to drive off the moisture.

Meat drippings, the fat skimmed from soup stock, bacon fryings, and butter are not pure fats, but contain bits of meat, meat juices, buttermilk, or other substances rich in protein which tend to decompose rapidly and ruin the flavor of the material. Such fats should be used up as promptly as possible; but if a large quantity does accumulate, it may be clarified by heating with an equal quantity of water at a moderate temperature for a short time and straining, while hot, through flannel or thick muslin. When cold, the cake of clean fat may be lifted from the water and, if desired, reheated in order to drive off the remaining moisture.

Nuts, chocolate, and other foods in which the fat is likely to become rancid should, like the fats themselves, be kept cool and clean and in covered, light-proof containers.

#### BAKED GOODS.

Bread, cake, pies, cookies, and other baked goods, after they are taken from the oven, should be cooled rapidly in a place free from dust and insects and then stored in a well-scalded tin box or other suitable covered receptacle. Wrapping hot bread in a cloth tends to injure the flavor and spoils the crisp crust. Bread offers ideal conditions for the growth of molds; therefore the bread box should be scalded and aired at least once a week and should not be shut up airtight especially in hot, humid weather when it is filled with fresh bread.

The waxed paper wrappers in which many bakers are now marketing their bread are intended not to keep it moist but to protect it against flies, dust, and other sources of contamination during handling and delivery so that it will reach the consumer as clean as when it left the oven. Therefore, putting bread in these soiled paper

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<sup>11</sup> U. S. Dept. Agr., Farmers' Bul. 879, Home Storage of Vegetables.

wrappers into the bread box not only is an untidy practice but defeats this purpose.

Baked goods, and in fact all cereal products, have a remarkable capacity for absorbing and giving off moisture. For instance, if moist bread or cake and dry crackers or cookies are stored in the same container, the moisture will tend to pass to the drier kind. Crackers and crisp cookies are best kept in separate tight boxes or jars to prevent their absorbing moisture from the air or any damp material near them.

#### DRY FOODSTUFFS.

The keeping quality of foodstuffs, such as flour, sugar, raisins, dried corn, and rice and other cereals, depends chiefly on the fact that they are dry. In the home, therefore, these foods should be kept dry and clean and protected against insects and other vermin. For tea, coffee, and spices the containers should be as nearly air-tight as possible in order to prevent loss of flavor. Dried meats, such as smoked hams, strips of bacon, and jerked beef, and home-dried fruits and vegetables are best kept in muslin bags hung in a clean, cool, dry storeroom. If dried meats are hung in the cellar or dried fruits or vegetables are stored in the steamy kitchen, they are likely to mold.

#### CANNED GOODS.

Jellies, jams, and home-canned fruits and vegetables should be kept in a clean, dry, cool closet or storeroom, preferably on narrow shelves so that the supply can be looked over easily and spoilage quickly detected. If canned goods must be stored in the kitchen cupboard, they should be placed on the lower shelves where they will be least exposed to heat and steam. Heat and excessive moisture tend to injure the texture and to favor the growth of molds on jellies and preserves that are not sealed in air-tight containers.

#### GENERAL RULES.

Food costs labor or money or both; therefore it should receive the best care in the home. Moreover, clean food is necessary to health and well-being. Some of the most important kinds are highly perishable and require careful handling.

Food must be safeguarded from spoilage by bacteria, yeasts, and molds, by changes produced by heat and cold, light, and loss or absorption of moisture, by insects and household pests, and by animal parasites. The following are general rules for checking or preventing food spoilage in the home:

All foods should be kept clean; that is, protected from visible dirt and from contamination by insects and other carriers of dangerous microorganisms. Most kinds should also be kept cool. Dry foods, such as crackers, need to be prevented from absorbing moisture, and succulent foods, such as fresh vegetables, from losing it.

Milk, fresh meat, poultry, and fish, and many fresh fruits and vegetables should be kept at a temperature of 50° F. or preferably less in order to check the growth of microorganisms that cause souring and decay.

All fruits and vegetables that are to be eaten raw should be thoroughly washed, for even though they look clean, dangerous bacteria may cling to skins or leaves. As a rule, uncooked meats of any kind should not be eaten. Smoking meat does not kill parasites.

Left-over cooked foods should be kept cold and covered, used promptly, especially in warm weather, and, if possible, heated thoroughly before being served again. Dangerous poisons sometimes develop in such foods without making noticeable changes in taste or smell.

Fats and fat foods, such as nut meats and chocolate, should be kept cool and in covered, light-proof containers to prevent their turning rancid.

Bread and cake should be stored in a covered box or dish which is scalded frequently so that molds can not develop.

Flour, sugar, cereals, and other dry groceries should be kept dry and protected from household pests. Tea, coffee, and spices hold their flavor best in air-tight containers.

Canned foods keep best in a cool, dry closet or storeroom. Those in glass jars should be shielded from the light to prevent possible fading.

Under household conditions, the refrigerator is oftentimes the best means of keeping food cool. Choose one with well-insulated walls, put only clean ice and clean food in clean containers into it, and keep it clean by the daily practice of genuine neatness.

Adequate storage places and containers make for economy and safety in handling food in the home.

# ORGANIZATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

October 2, 1929

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